

KAUHOLA POINT LIGHTHOUSE
Old Kohala Mill Road
Halaula
Hawaii County
Hawaii

HAER HI-89
HAER HI-89

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
PACIFIC WEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
1111 Jackson Street, Suite 700
Oakland, CA 94607

HISTORIC AMERICAN ENGINEERING RECORD
U. S. COAST GUARD KAUHOLA POINT LIGHT HOUSE

HAER No. HI-89

<u>Location:</u>	Old Kohala Mill Road Halaula County of Hawaii Hawaii USGS 7.5 minute series topographic map, Hawi, HI 1998 Universal Transverse Mercator (UTM) coordinates: 04.789537.2241159
<u>Date of Construction:</u>	1933
<u>Engineers & Builders:</u>	Frederick Edgecomb
<u>Present Owner:</u>	United States Coast Guard
<u>Present Occupant:</u>	Vacant
<u>Present Use:</u>	Abandoned
<u>Significance:</u>	The Kauhola Point Light House is associated with the history and development of navigational aids in Hawaii. It is a good example of a light house in Hawaii, being one of nine major light houses constructed in the islands between 1909 and 1933. It reflects its period of construction and Pacific location in its use of materials, method of construction, craftsmanship, and design.
<u>Report Prepared by:</u>	Don J. Hibbard, Ph.D. Architectural Historian Mason Architects, Inc. 119 Merchant Street, Suite 501 Honolulu, HI 96813
<u>Date:</u>	February 2009

A) GENERAL DESCRIPTION AND LOCATION

The Kauhola Point Light House is located on a relatively isolated peninsula that forms the eastern shoulder of Keawaeli Bay in North Kohala on the island of Hawaii. The 86' high, reinforced concrete structure sits at the end of a 1.2-mile dirt road off Highway 270 on a slightly over three-acre parcel, whose Tax Map Key is (3)-5-3-006:001. Surrounded on three sides by approximately 30' high, steep, subvertical inclined (seventy to eighty degrees), exposed shoreline cliffs, it has unobstructed vistas of the Pacific Ocean on three sides.

The tapered cylindrical body is surmounted by an electric beacon with a 1-1/2" pipe guardrail circumscribing the crest of the structure. The light house has 2' thick walls and sits on a 24' wide octagonal foundation that is embedded in the ground approximately 3' to 4'. The circular lighthouse rises from this base, set back from its edge approximately four feet at its narrowest point. A slightly outset, pedimented entry provides the structure with its only architectural pretension. Within the doorway a stainless steel door is mounted in a 7' x 4' iron frame. The door is not original and at some point replaced the original wood, two-panel, double doors. Four over four, double hung sash windows at one time were above the doorway at the third and fifth story levels, but these have been blocked in and are no longer evident. In addition, six similar windows, one at each story, on the east, west and north facing sides have met with the same fate, except for a sixth story window on the north elevation, which has been replaced with a fixed, single pane window.

An internal, 60" diameter, cast-iron, spiral stair accesses the top of the light house. The stair is composed of one hundred eight steel steps whose hubs, or sleeves, are stacked one upon the other onto a central pipe to form a round, 6" center column. The hubs are secured to the structural pipe by set screws. The pie shaped treads are embossed with a diamond-shaped pattern, and range in width from 3" at the hub to 16" at the perimeter of the stair. Each step rises 8" above the last, but there are no risers. A 1-1/2" steel tube railing traverses the length of the stair supported by simple 1-1/2" pipe balusters every fifth step. A 1-1/2" pipe guardrail circumscribes the stairwell at each floor for safety purposes. The lighthouse has six floors, each made of 6" thick reinforced concrete, which reduce in diameter with each succeeding floor. The second floor is 12' in diameter, while the top floor is 8'-3" in diameter. Each floor is 12' high, except the top floor which is only 7'-11" high. On each floor a bare bulb light is mounted in the north wall 9' above the floor. There are nineteen steps between each floor, with thirteen steps ascending from the top floor to a 24" x 32" metal hatch, which replaced an earlier sliding trapdoor in 1984. The hatch lifts open to access the roof, where double airway beacons are mounted. The welded, lantern-like superstructure that originally served as the culmination of the lighthouse was removed at some point after World War II. The roof is of 8"-thick reinforced concrete. The top floor retains the sole window to remain in the structure, a 28" x 34" fixed window with a wood frame in the north face of the lighthouse.

On the lighthouse property are the remains of several other structures. A concrete sidewalk runs southeast from the lighthouse to the ruins of two former structures. The northern most is the foundation to a former gasoline storage house. This rectangular reinforced-concrete pit measures 15' x 7'-9". It is 5' deep and contains a pair of reinforced concrete saddles that are 57" wide and approximately 48" high and 6" thick. These saddles once supported an 854-gallon, iron gasoline tank as is evidenced by the semi-circular cut in their surfaces, which is approximately 39" across and 18" deep. No evidence remains of the tank or the corrugated asphalt structure which protected it. The gasoline was used to power a generator that was in the ground floor of the lighthouse, for use in the event the commercial power source failed.

A second structure is the ruins of the former oil house, built in 1914, which in the post-World War II years functioned as a paint locker. The footprint of the oil house measures 7' x 9'. This ruin has reinforced-concrete and rubble walls which at their highest stand their original 7' tall; however, only portions of the east and south walls remain standing. There is no roof or evidence of its wood framing extant. A sidewalk leads from the main concrete walkway to a 46" opening in the west side of the foundation. A 1949 Coast Guard inspection report indicated this structure was at that point in poor to fair condition.

Also on the property, to the northwest of the lighthouse are two sets of four battered concrete piers laid out in a square. The southern most set's piers are spaced 14' on center and each pier measures 15" square on the top and 18" at the base and are approximately 8" high. The second set's piers are spaced 13' on center and measure 24" square at the top and 36" at the base. These piers are approximately 12" high. These sets of piers are believed to have supported the original wood frame light house and a service shed. In 1947 an observation tower was constructed on the former lighthouse piers. This most likely was removed after 1951 when the station was converted to an unattended station.

B) HISTORICAL CONTEXT

Navigational Aids in Hawaii

In the centuries prior to regular trans-Pacific maritime commerce, the people of Hawaii would use open fires to guide paddlers safely to shore at night. In so doing, they perpetuated a worldwide tradition. With the introduction of larger ships to the islands' waters, frequently manned with crews unfamiliar with the topography, a need for more permanent lights arose. In 1840 King Kamehameha III ordered a 9' wood tower built as an aid to navigation for the whaling ships anchored off Lahaina. This is the earliest light known to have been constructed in Hawaii and the Pacific, as California was not blessed with a lighthouse until 1854, when a light on Alcatraz Island in San Francisco Bay was activated. Despite his royal majesty's early effort, no other lights appeared in Hawaii until 1859, when a lighthouse was erected with private funds at Kawaihae. Others followed, mostly all underwritten by such private enterprises as shipping

companies, whaling suppliers, and other merchants. However, the Kingdom of Hawaii eventually assumed responsibility for the lighthouses, a responsibility which was continued by the Provisional Government and Republic.

Following the annexation of Hawaii by the United States in 1899, a Congressional committee arrived in the new territory in 1902 to investigate navigational aids and public buildings. They found approximately seventy five navigational aids in the islands, with around fifteen of these operated by private entities. One of the investigators reported, "The lighthouses are generally of a crude character, the one on the top of the custom house in Honolulu being a lantern with a red cloth tied around it. I understand there is not a revolving light on the island coast." The report went on to note all the lighthouses were "very cheap and short range." [Weinberg, 1939] Other than Diamond Head, which had a dioptric light of the third order, all the lighthouses used ordinary oil wick lights for their illumination. It was not until 1932 that the last oil wick lamp was taken out of use in Hawaii.

The Territorial Legislature, aware of federal initiatives to transfer responsibility for the lighthouses to the federal government, voted to discontinue funding Hawaii's lighthouses after December 31, 1903. This forced the issue of maintaining the lighthouse operations, and Prince Kuhio, Hawaii's non-voting delegate to Congress, was able to persuade President Theodore Roosevelt to issue a special proclamation on December 28, 1903, placing the lighthouses of Hawaii under the jurisdiction of the Lighthouse Board within the U.S. Treasury Department. Hawaii was included within the Board's Twelfth District, which also had all the lighthouses of California under its administration. The district maintained Hawaii's existing lights, and in 1909 built the islands' first reinforced-concrete lighthouses, Makapuu Light on Oahu and Molokai Light at Kalaupapa. Built to aid westbound ships heading to Honolulu, the construction of these two lighthouses responded not only to the 1902 Congressional investigation report's recommendation for more lights to guide ships to Honolulu harbor, but also the grounding of the *Manchuria* off Waimanalo in 1906.

In 1910 the Light House Board was abolished and a new Bureau of Lighthouses was established in the U. S. Department of Commerce and Labor. Nineteen Lighthouse Districts were established, with Hawaii in the Nineteenth District along with Midway, Guam, and American Samoa. Over the next decade the Bureau constructed three new concrete lighthouses at Kilauea (1913), Lahaina (1916) and Diamond Head (1918). Reinforced concrete lighthouses are rarely found on the east coast of the United States or along the Great Lakes, and remain primarily confined to the west coast of the United States and Hawaii, as the Bureau believed the material provided more structural stability in earthquake-prone areas.

No other substantial lighthouses were built by the Bureau of Lighthouses in Hawaii until the early 1930s when construction commenced on towers to replace existing lighthouses at Nawiliwili (1932), Kauhola Point (1933) and Barber's Point (Kalaeloa) (1933). This trio of reinforced concrete structures all followed similar plans. In 1934 the

Bureau built the 125' tall steel skeletal tower at Cape Kumukahi, Hawaii's eastern-most point. It was the tallest light in Hawaii and would be the last major lighthouse to be erected in the islands. By 1939 Hawaii had over 316 navigational aids, including nine major lighthouses with keepers, seventy-seven automatic lights, forty-nine lighted buoys, one hundred and two unlighted buoys, and seventy-seven day markers.

On July 1, 1939 the Bureau of Lighthouses was transferred from the Department of Commerce to the U. S. Coast Guard. Since that time, navigational aids have remained under that agency's jurisdiction.

Kauhola Point

Perched on a promontory overlooking the Pacific Ocean, Kauhola Point lighthouses have served as beacons for seafaring travelers for one hundred and twelve years. C.L. Wight, the president and manager of the Hawaiian Railroad Company, with the support of W.B. Godfrey and William C. Wilder of the Wilder Steamship Company, requested a light be built on this peninsula as early as 1891 in order to warn ships of the dangerous low-lying, off-shore reefs. However, in those turbulent times moneys for such an endeavor did not materialize, and it was not until 1897 that the Republic of Hawaii constructed a wood tower at the point. This initial lighthouse was 34' high and supported an incandescent oil vapor lamp of one hundred seventy candlepower showing a fixed white light, which was visible nine miles seaward.

Following annexation, the wooden lighthouse came under the administration of the Light House Board, and in 1910 became the responsibility of the Bureau of Lighthouses. The latter undertook major improvements to the Kauhola Light station during the period 1914-17. A lighthouse keeper's house was built on the site, as was an oil storage building in 1914. Three years later, in 1917, the original lighthouse was replaced by a temporary frame tower with a flashing fourth-order lens of sixty seven thousand candlepower. Although requests were annually submitted to Congress to fund the building of a permanent lighthouse, no money was forth-coming for this purpose for fourteen years. Finally, on March 9, 1931 money was allotted for a new, reinforced-concrete lighthouse. The new lighthouse followed the plans used for the light at Nawiliwili Harbor on Kauai, and subsequently the plans were also used at Barber's Point (Kalaeloa). The Nawiliwili plans were slightly altered for Kauhola Point by adding more reinforcing iron to the foundation and around all openings, in response to concerns of possible earthquakes. The new lighthouse was completed in March 1933. A new electric, Westinghouse, double airway beacon was placed on top of the new structure. The glass lenses on the optic were 36" in diameter with a central bulls-eye and twelve annular sectors. There were double inner lenses, 18" in diameter, one red and one green, so the light was readily recognized with its alternating flashing red and green light. Although such lights were common along the Pacific coast of the United States, Kauhola Point was the first with this feature in Hawaii. The new light had a five hundred sixty thousand candlepower and was visible for seventeen miles seaward.

In 1948 the Coast Guard undertook a study to consider the feasibility of having Kauhola Point lighthouse be converted to a fully automated, unattended light. Other lighthouses in Hawaii also reviewed at that time included Kailua, Kalae, Pepeekeo, and Nawiliwili. For Kauhola Point the decision to automate was deferred for several years, as the Coast Guard deemed it strategically important as an observation post. However, on June 30, 1951, the light was converted to unattended, with its last keeper, Sidney Estrella and his family, transferred to Cape Kumukahi. By 1976 all the lighthouses in Hawaii had been automated.

As an automated lighthouse, Kauhola Point's reinforced-concrete tower has been modified over the years. In 1963 its wood four-over-four double-hung sash windows, which for many years had been leaking and causing damage to the walls, were blocked. A coat of plaster and paint obliterated any evidence of the windows' presence on the exterior of the structure. It appears that at this time the original lantern may have been dismantled as well. In 1984 a new set of DCB-224 beacons were placed on the top of the tower.

In December 2007, an engineering report prepared by Clayton S. Mimura estimated that the Kauhola Light would experience structural damage or catastrophic collapse within the next two to five years as the ocean fronting cliff on which the lighthouse stands continues to erode towards the structure's foundation. In 1933 the concrete lighthouse was approximately 85' away from the edge of the cliff, but today is a mere 20' distant. Between 2003-2007 the cliff retreated approximately 15', which was in part exacerbated by the October 2006 earthquake when the cliff face advanced 6' closer to the tower. Because of the predicted imminent toppling of the lighthouse and the ever encroaching proximity of the ocean, the Coast Guard has deemed it prudent to demolish the 1933 structure and replace it with a monopole.

Kauhola Point is significant as one of the nine major lighthouses constructed by the Lighthouse Board in Hawaii during the period 1909-1934. The other eight light houses include: Kilauea and Nawiliwili on Kauai; Makapuu, Diamond Head, and Barber's Point on Oahu; Molokai Light at Kalaupapa; Lahaina on Maui; and Cape Kumukahi on the island of Hawaii. With the exception of the latter, all were built of reinforced concrete. They all remain standing.

Lighthouse Keepers at Kauhola Point:

1910-1913: Edward Moealoha
1914-1915: Frank A. Peterson
1916:: William Welsbarth
1917-1920: George Ah Choy
1921-1922: Charles K. Akana, John Kaohimunu
1923-1933: John Sweeney
1935-1941: John Sweeney
1941-1951: Sidney Estrella

PART III. SOURCES OF INFORMATION

A. Architectural Drawings:

The United States Coast Guard retained within their Honolulu District Office a number of drawings and plans. The following drawings provided information for this report.

Title & Sheet #	Date	Office in Title Block	Drawn By	Drawing Number
Survey of Kauhola Point Light Station	Feb 26, 1909 Revised Oct 1927	Office of Assistant to the Engineer	HLord	CG No. 14-089-001
Kauhola Point Light Station	Dec 16, 1933	Superintendent of Lighthouses	HM	CG No. 14-029-010
Topographic Survey	Feb 11, 2008	Civil Engineering Unit		HO364
Repairing of Cracked Concrete, Installing Hollow Tile, Plastering, Painting	Dec 13, 1965	Engineering	RJL	CG No. 14-029-014
Kauhola Point Light	Sept 20, 1964 Revised Sept 25, 1989	Civil Engineering	NK	CG No. 14-043-024
Barber's Point Light Station, Plan and Elevation	January 23, 1933	Office of the Superintendent of Lighthouses	C.N. Elliot	CG No. 14-133-018, sheet 1 of 5
Barber's Point Light Tower	January 23, 1933	Office of the Superintendent of Lighthouses	C.N. Elliot	CG No. 14-133-018 Sheet 2 of 5
Barber's Point Light Station, Details	January 23, 1933	Office of the Superintendent of Lighthouses	C.N. Elliot	CG No. 14-133-018 Sheet 3 of 5

B. Bibliography:

Bassett, W. K., "Towers of Light that Warn the Travelers on Waters of Hawaii," *Pacific Commercial Advertiser*, March 28, 1950, Section 5, page 4.

Chapman, William. *Moloka'i Light Station Historic Resources Report*. Kalaupapa: National Park Service, 2001.

Honolulu Advertiser

Albright, Harry, "Sentinels of the Sea Lanes," April 14, 1938, Magazine Section, page 1

McKaughan, Henrietta, "Lighthouses of Hawaii," April 30, 1925, section 2, page 1

Honolulu Star Bulletin

Walker, William, "New Light at Kauhola," April 8, 1933, section 3, page 1.

Weinberg, Richard, "Lighthouses! 150 Years of Service," May 27, 1939, Feature Section, page 1

Jones, Ray and Bruce Roberts, *Lighthouses of California and Hawaii*, Guilford, Connecticut: Globe Pequot Press, 2002.

Love, Dean, *The Lighthouses of Hawaii*, Honolulu: University of Hawaii Press, 1995.

Mimura, Clayton S., *Geotechnical Engineering Exploration, Contract No. HSCG86-04-D-633207, Task Order No. HSCG86-07-J-633241, Kauhola Point Light, Kapa'au, Island of Hawaii*, Honolulu: Geolabs, Inc., 2007.

Paradise of the Pacific

O'Hara, Nealson, "Lighthouses on the Hawaiian Islands," December 1939, page 109.

Tinkham, R. R., "About Lighthouses and the Service in Hawaii," December 1925, page 73

Shanklin, Bob, and Sandra Shanklin, *Lighthouses of the Hawaiian Islands*, Fort Walton Beach, Florida: The Lighthouse People, 2000.

C. Supplemental Material:

Lighthouse Friends.Com, "Kauhola Point, HI"
<<http://www.lighthousefriends.com/light.asp?ID=145>>
c. 2001-2009 viewed February 11, 2009

Rowlett, Russ, "Hawaii Light Houses,"
<<http://www.unc.edu/~rowlett/lighthouse/hi.htm>>
June 18, 2008 viewed February 11, 2009

United States Coast Guard, "Historic Light Station Information and Photography,
Hawaii,"
<<http://www.uscg.mil/history/weblighthouses/LHHI.asp>>
August 7, 2008 viewed February 11, 2009

United States Coast Guard, "Lighthouses Then and Now,"
<http://www.uscg.mil/history/articles/h_lighthouses.asp>
August 21, 2008 viewed February 11, 2009

PART IV. PROJECT INFORMATION

The following documentation was prepared in response to the proposal to demolish the historic property. The purpose of this documentation is to provide a permanent record of the architectural and engineering elements of the light house. The property owner and the Hawaii State Historic Preservation Division (SHPD) have agreed that the light house is eligible for the National Register. The SHPD, Historic Hawaii Foundation, and U.S. Coast Guard have entered into a Memorandum of Agreement which recognizes the significance of the lighthouse and stipulates HAER documentation be completed as a means of mitigating the adverse effect to this historic property.

The project manager for the HAER documentation was Polly Cosson Tice of Mason Architects, Inc. Don J. Hibbard, Ph.D. of Mason Architects was the researcher and author of the report. Both Polly Cosson Tice and Don Hibbard are architectural historians who meet the Secretary of the Interior's Professional Qualifications in architectural history. Carol Stimson of Mason Architects assisted with the editing and production of the reports. The large-format photographs were taken by David Franzen of Franzen Photography.

(Page 10)

U.S.G.S. Hawi, Hawaii, 1998:

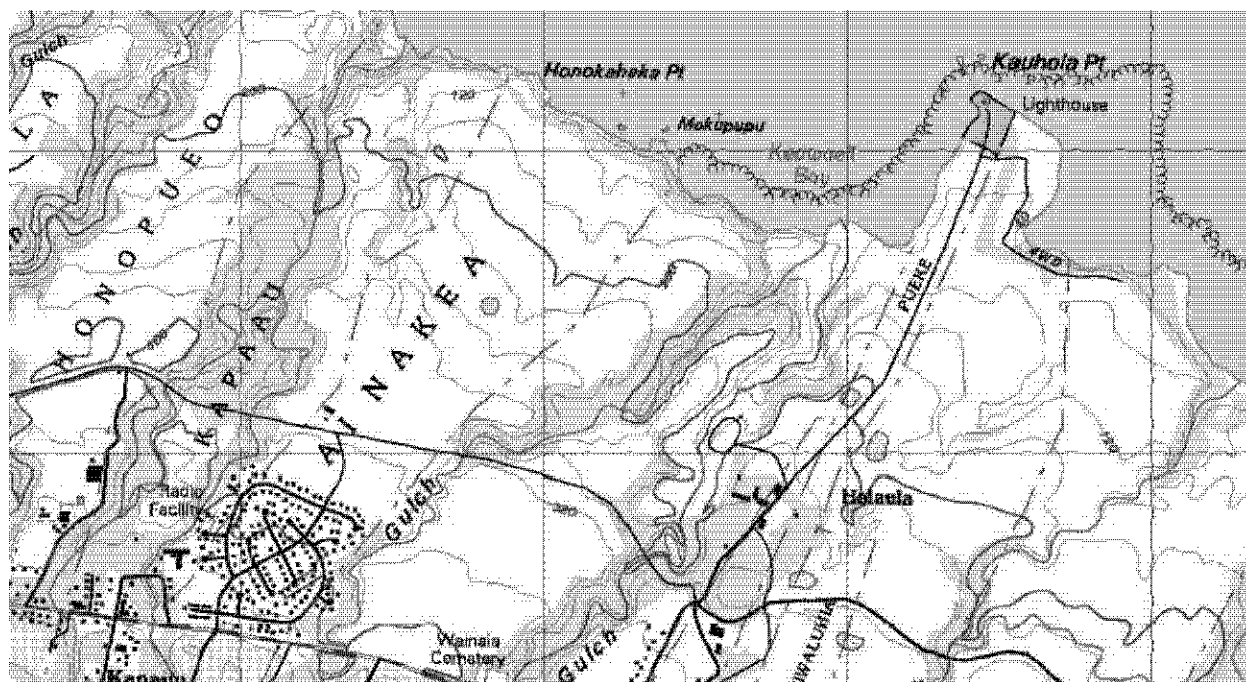


Figure 2: Aerial Photograph, Kauhola Point Light House, June 22, 1934



Figure 3: Kauhola Point Lighthouse, West Elevation, October 1934

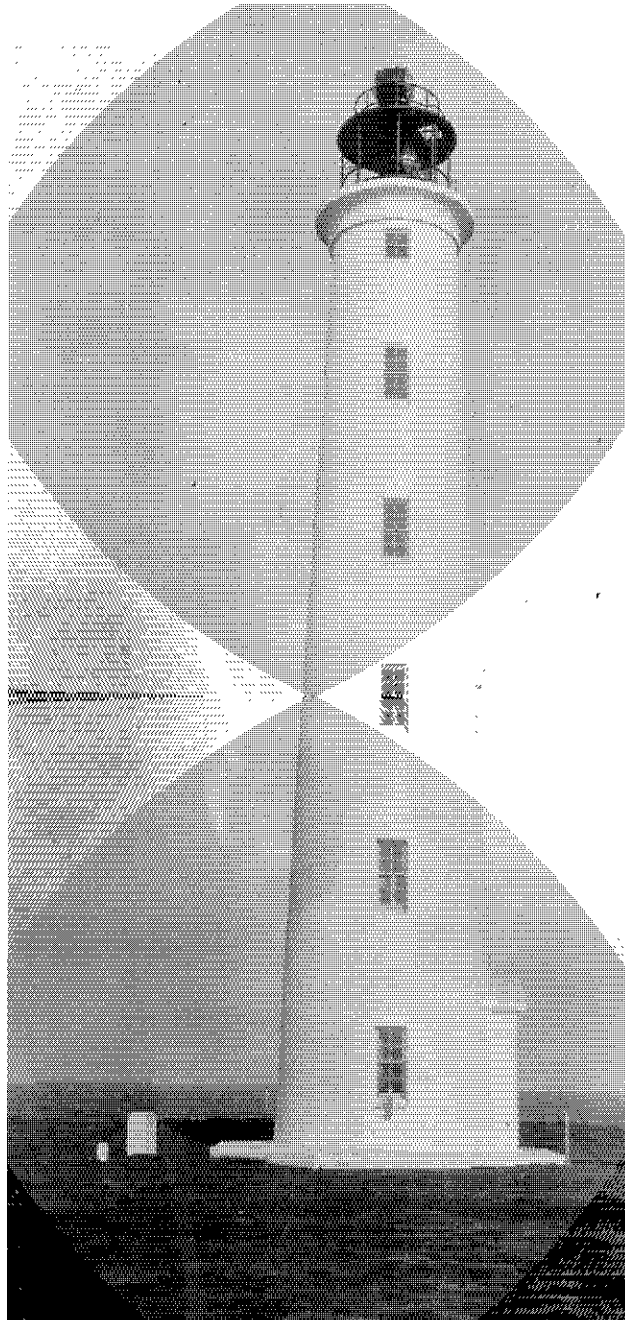


Figure 3: Kauhola Point Light House, Site Plan 1909, last revised 1927

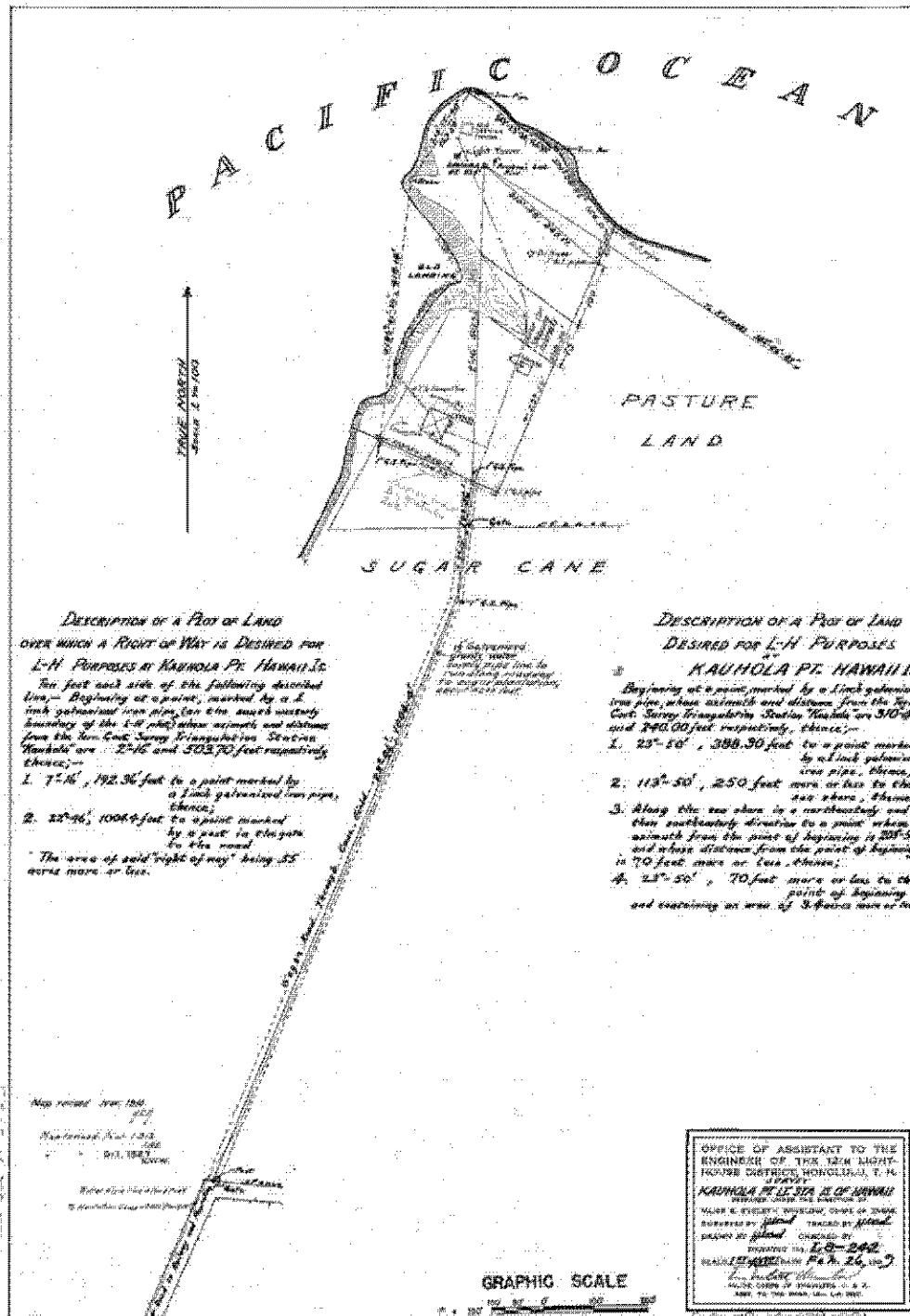


Figure 4: Kauhola Point Lighthouse, Site Plan 1933

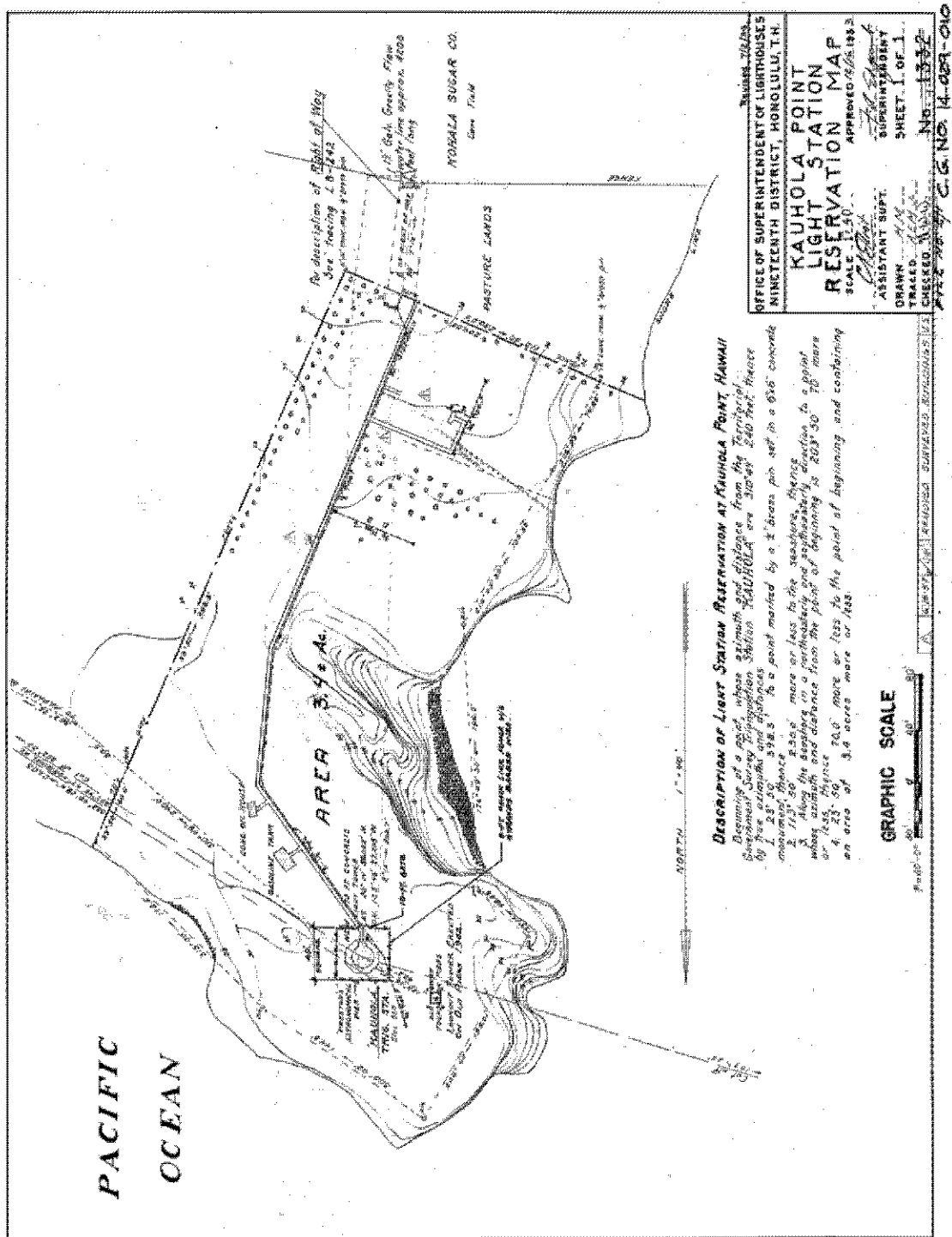


Figure 5: Topographical Map, 2008

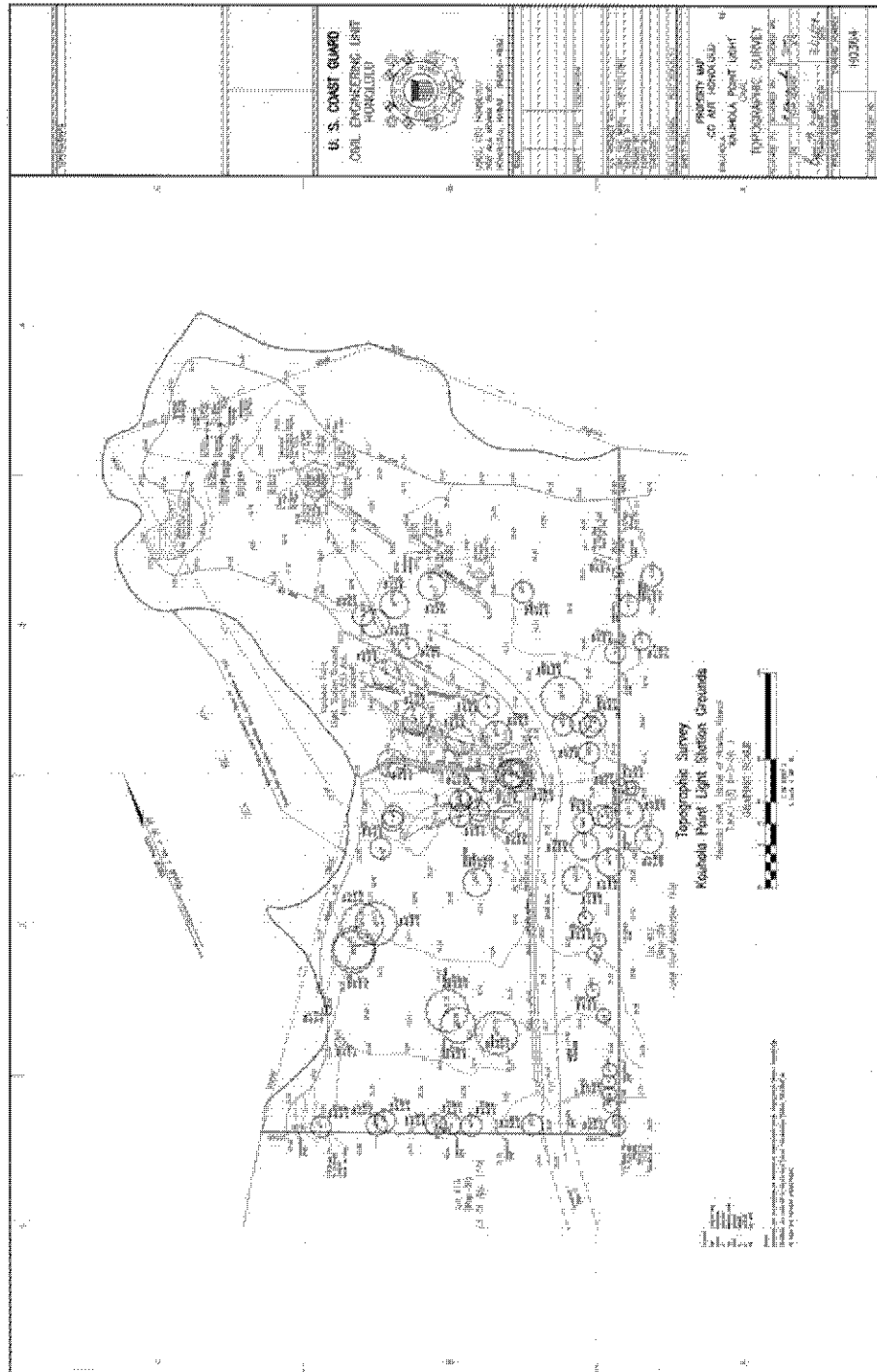


Figure 6: Repairs to Kauhola Point Light House, Elevations, 1963

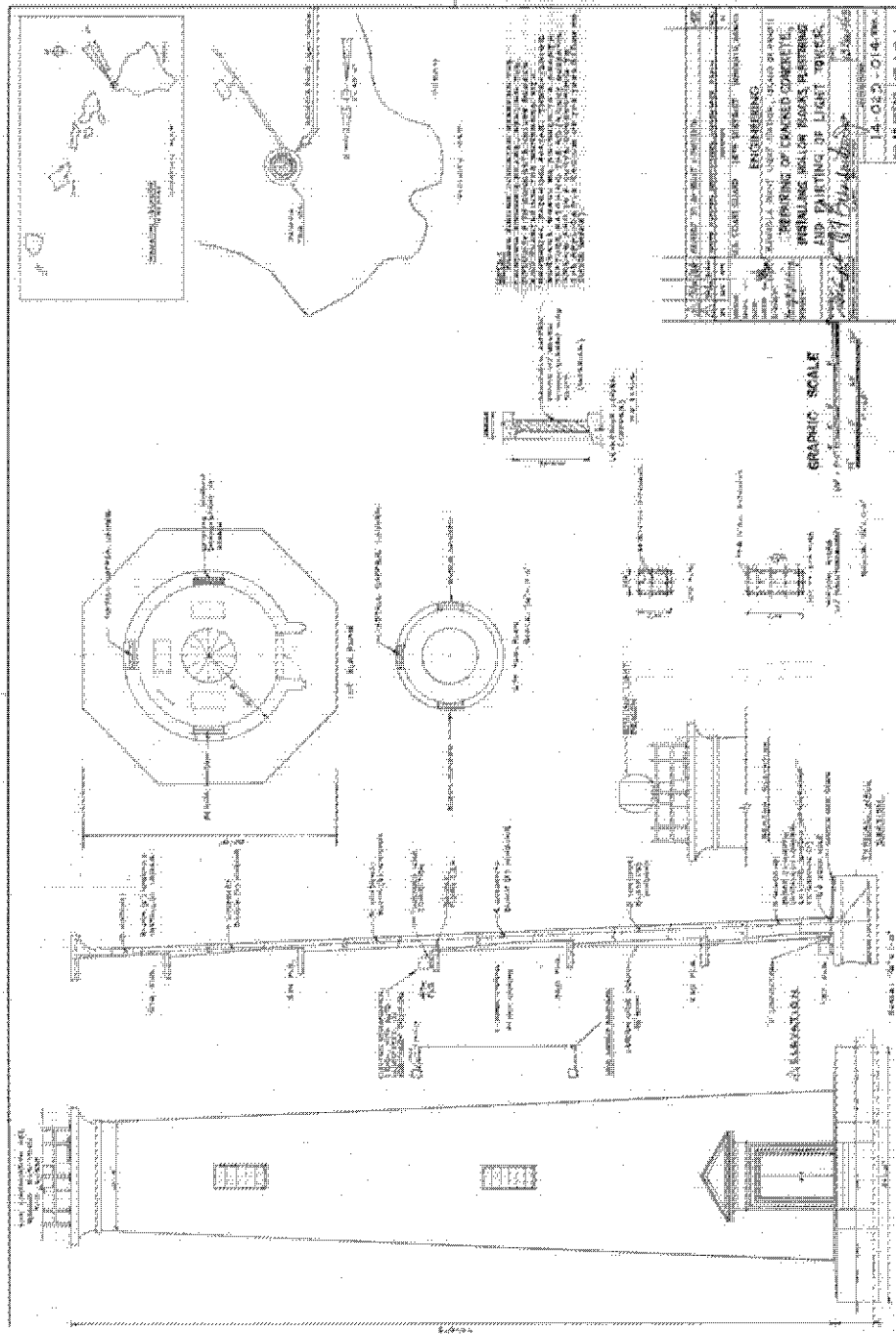


Figure 7: Kauhola Point Lighthouse, Beacon Changed, 1984

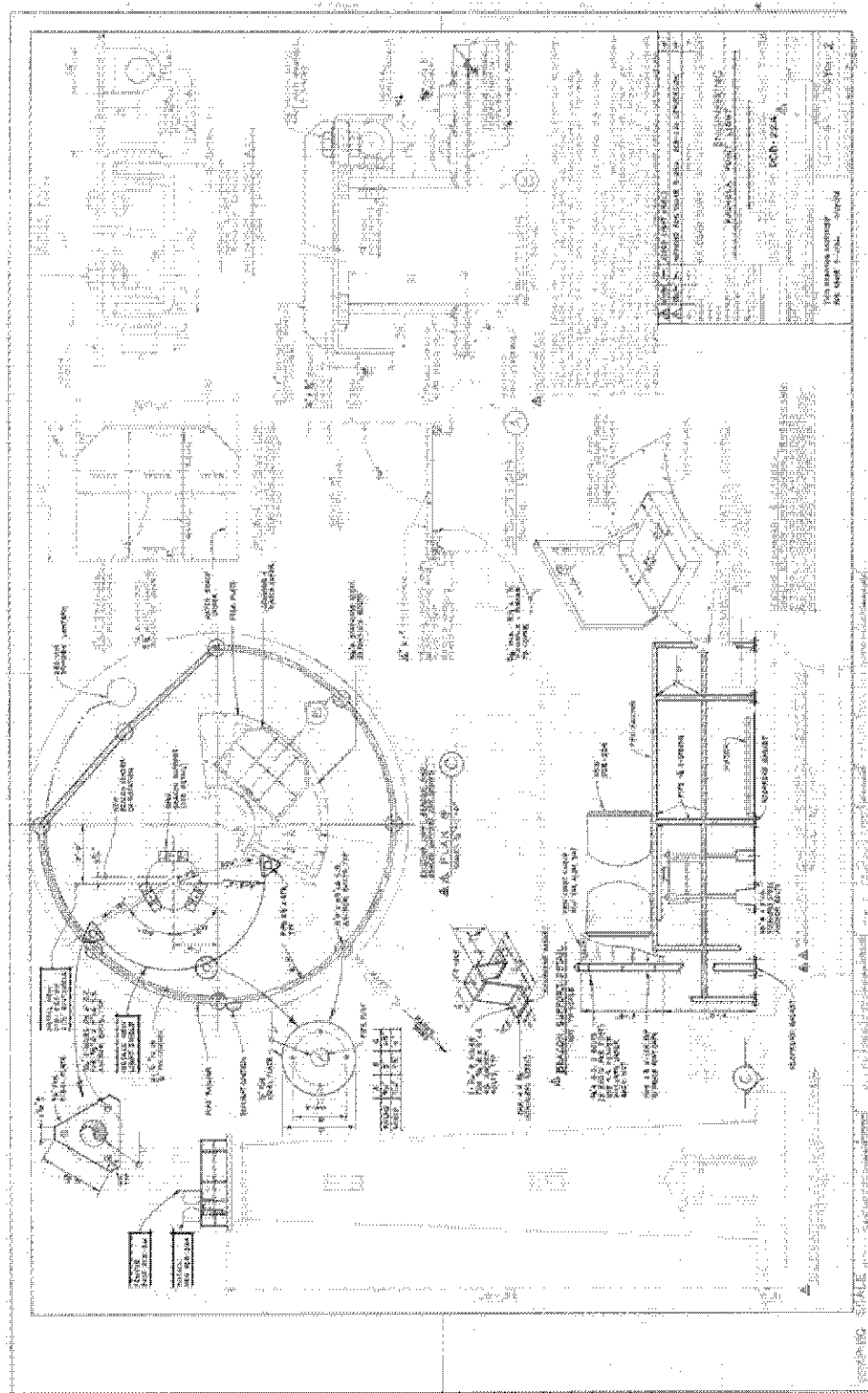


Figure 8: Oil House, 1914

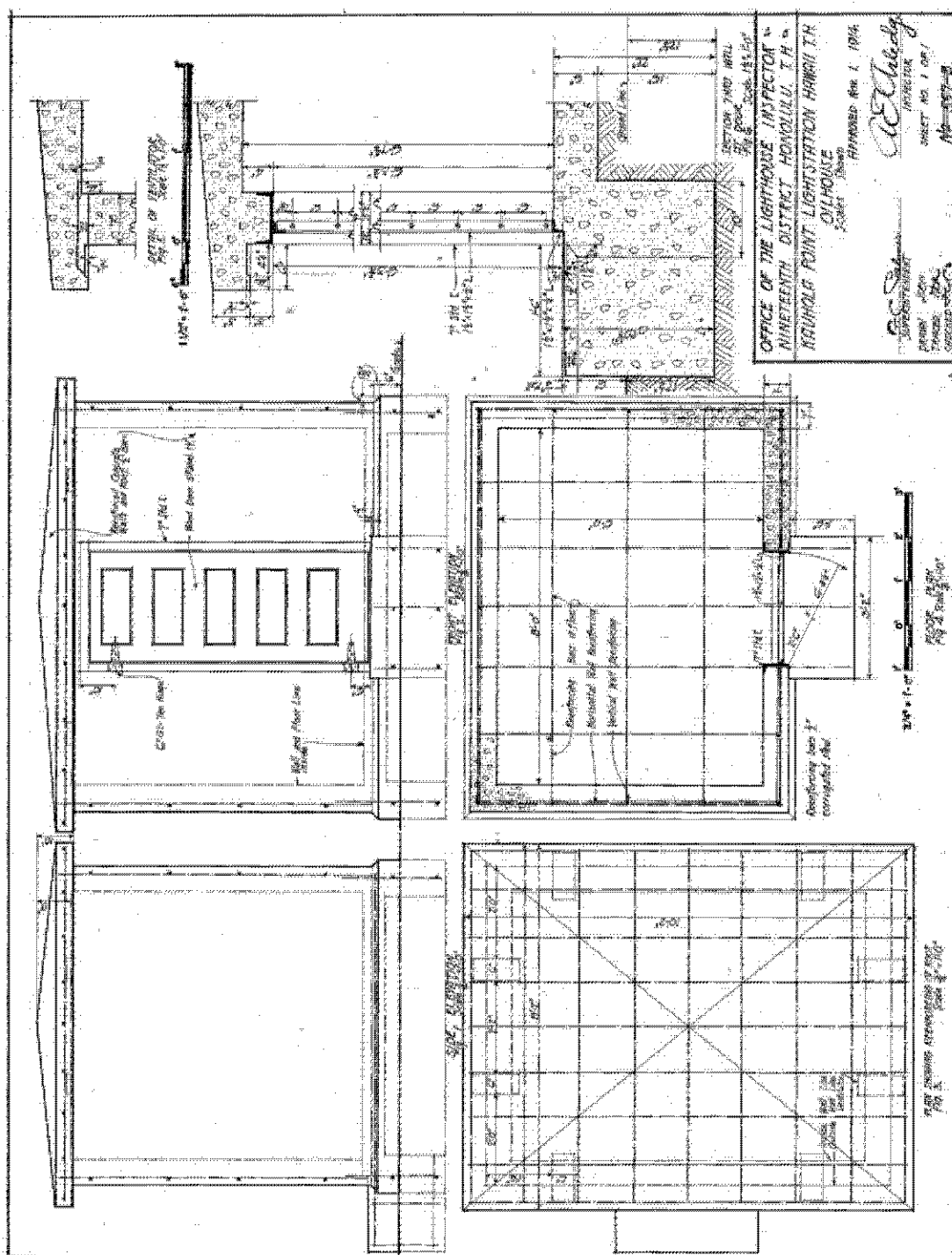


Figure 9: Barber's Point Light Station, Elevation and Plan, 1933

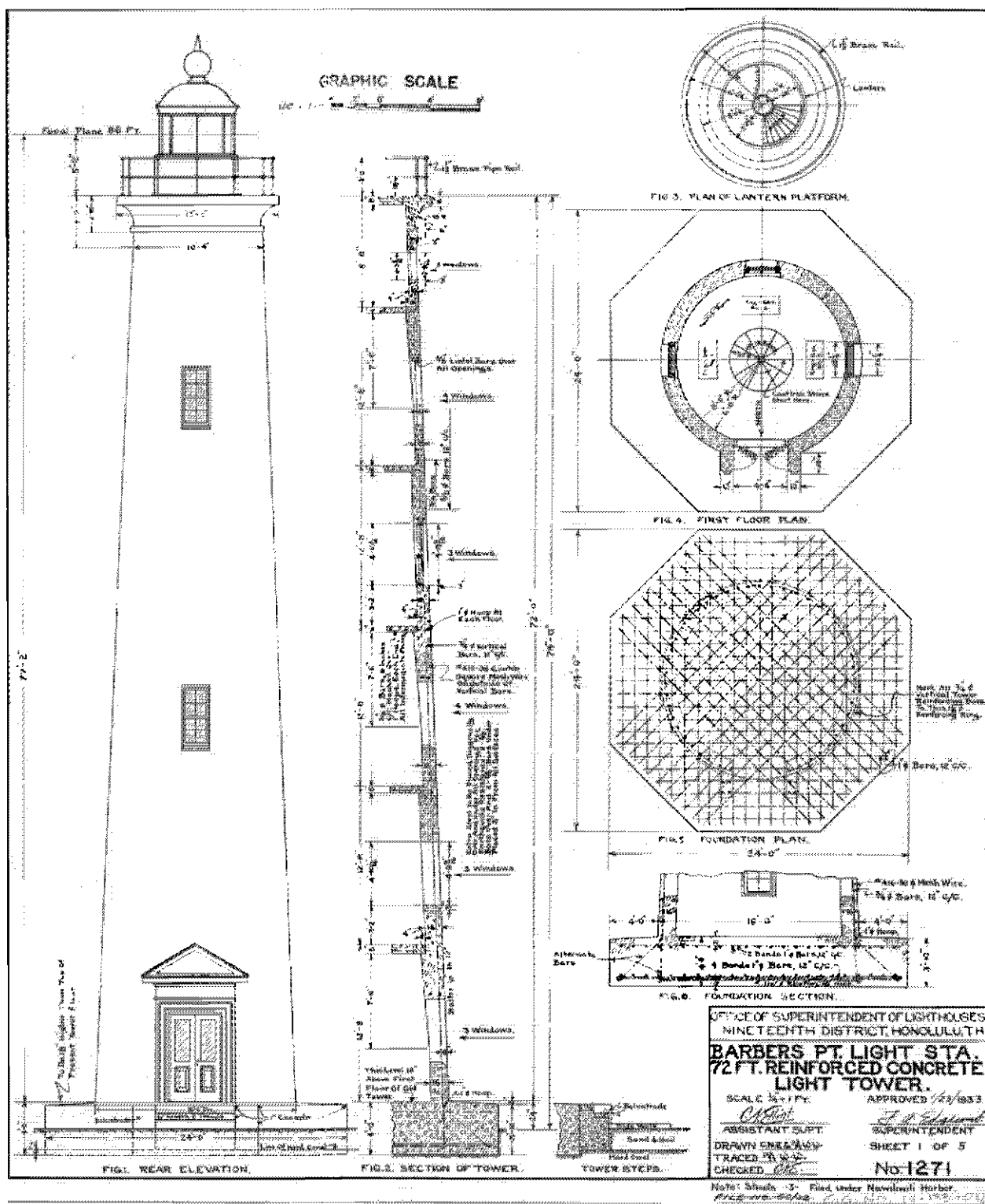


Figure 10: Barber's Point Lighthouse, Plan, 1933

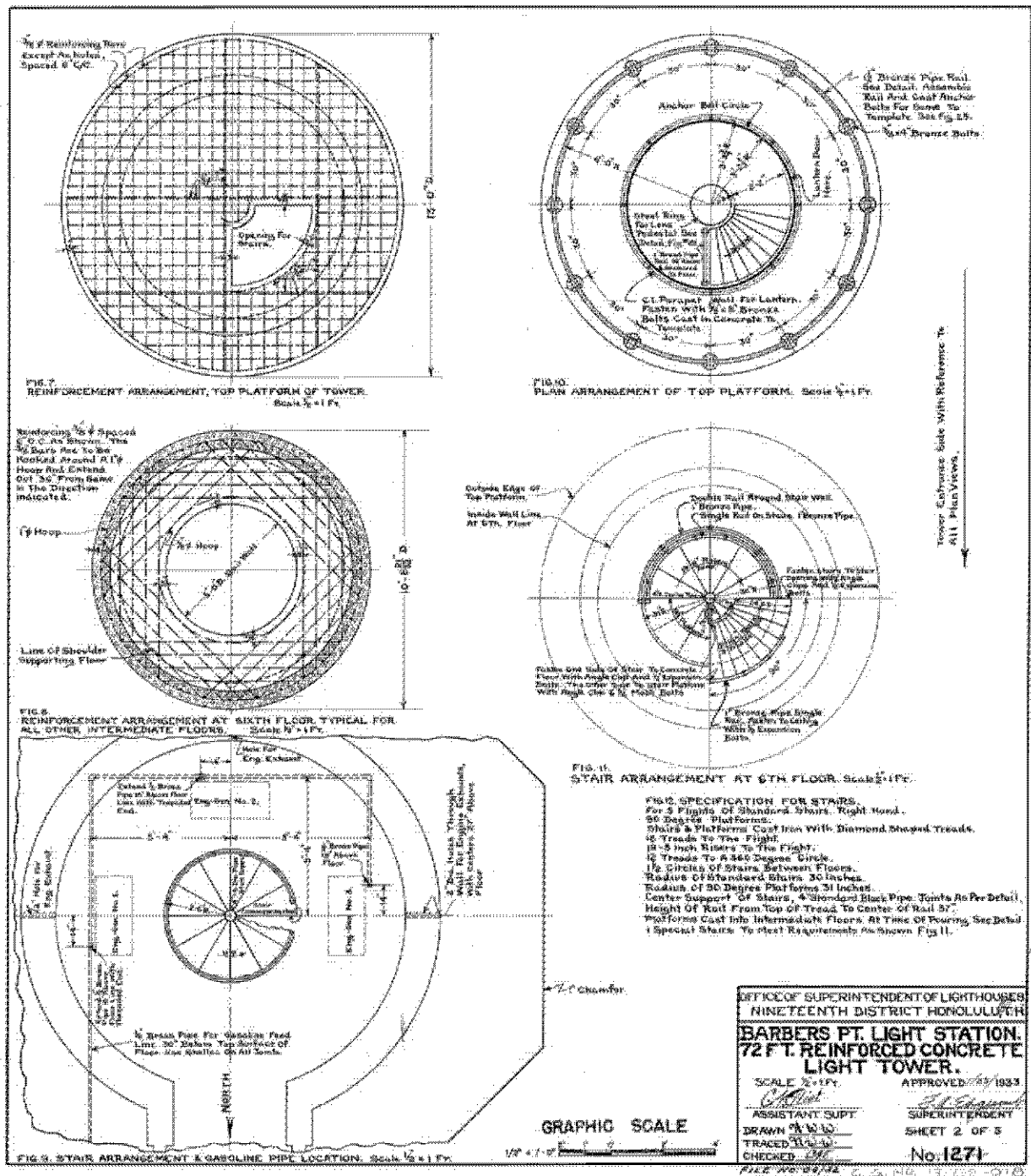


Figure 11: Barber's Point Lighthouse, Details, Windows and Door, 1933

